

UKHSA designates Omicron sub-lineage as variant under investigation

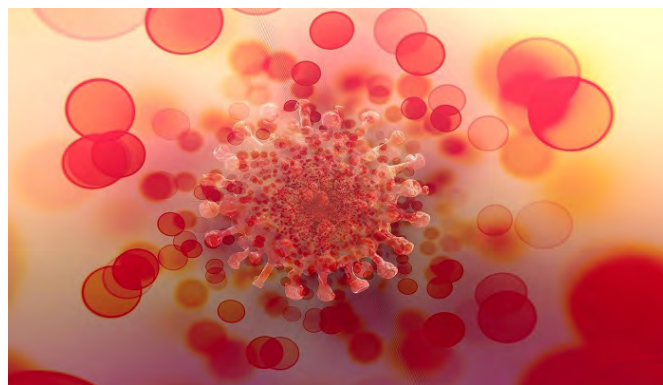
The UK Health Security Agency has designated a sub-lineage of the Omicron coronavirus variant as a variant under investigation, stating that it could have a growth advantage. The said sub-lineage, called BA.2 is said to have high dominance and transmissibility.

BA.2, which does not have the specific mutation seen with Omicron can help to easily distinguish it from Delta, reports Hindustan Times. Hence, the variant is being investigated but has not yet been designated a variant of concern.

“The Omicron Variant sub-lineage known as BA.2 has been designated as a variant under investigation. The number of BA.2 cases is currently low, with the original Omicron lineage, BA.1, still dominant in the UK and further analyses will now be undertaken,” the health agency said.

Dr Meera Chand, incident director at the UKHSA said, “It is the nature of viruses to evolve and mutate, so it’s to be expected that we will continue to see new variants emerge. Our continued genomic surveillance allows us to detect them and assess whether they are significant.”

She further added, so far, there is insufficient evi-



dence to determine whether BA.2 causes more severe illness than Omicron BA.1, however, the health agency would continue its investigation.

Britain has sequenced 426 cases of the BA.2 sub-lineage, and the UKHSA said that while there was uncertainty around the significance of the changes to the viral genome, the early analysis suggested an increased growth rate compared to the original Omicron lineage, BA.1.

The health agency further added that 40 countries had reported BA.2 sequences, with the most samples reported in Denmark, followed by India, Britain, Sweden and Singapore.

Depression linked to increased risk of new-onset atrial fibrillation: Study

According to a news study that has been published in the journal *JAMA Network Open*, depression is linked with a significantly increased cumulative incidence of, and risk for, atrial fibrillation (AF).

In a cohort study that involved more than five million adults, researchers from the Korea University College of Medicine and Korea University of Anam Hospital, Seoul, it was observed that the cumulative incidence of new-onset AF was doubled for those with depression vs those without — at 4.37 vs 1.86 per 1000 person-years, respectively. Adjusted analysis also showed depression was linked to a 25% increased risk for new-onset



AF.

“Depression is a disease that can be controlled; therefore, evaluation of the association between depression and atrial fibrillation is important from a public health care perspective,” the researchers write in the study.

According to the researchers, although AF can profoundly affect patients’ quality of life and sub-

stantially increase the incidence of major cardiac events, little research attempted to identify risk factors.

Nevertheless, it’s possible psychological stress aggravates or induces tachyarrhythmias through activation of sympathetic tone, reports Medscape. In fact, prior research showed a link between depression and increased sympathetic activity.

While previous research has already established a link between depression and increased risk for cardiovascular events in patients with myocardial infarction, any potential association between depression and risk for new-onset AF is yet to be established, the research-

ers said.

For the study, the researchers went through the Korean National Health Insurance Service database to look for all individuals who underwent a nationwide health checkup in 2009. The investigators compared the risk for new-onset AF, defined as AF that occurred between 2009 and 2018, in individuals who were and were not diagnosed with depression within a year of the 2009 checkup. Patients were excluded if they were less than 20

years old or had a history of heart valve surgery, had a previous diagnosis of mitral stenosis, or had been diagnosed with AF from January 2002 through December 2008. For purposes of the study, the incidence of new-onset AF was calculated as the number of events per 1000 person-years of follow-up.

Results showed that 56,951 of the 148,882 individuals with depression had recurrent episodes. Among this subpopulation, the incidence of new-onset AF was 5.55

per 1000 person-years, significantly greater than among those without recurrent episodes of depression (3.44 per 1000 person-years) and those with no depression at all (1.86 per 1000 person-years).

“Recurrent episodes of depression were associated with even higher risk. These findings suggest the need for adequate screening for AF in people with depression, particularly in younger people and women,” the researcher concluded in their study.

Scientists successfully transplant kidneys from genetically modified pig into brain-dead man in US

In another major medical breakthrough, surgeons from the University of Alabama at Birmingham (UAB) have successfully transplanted a pig’s kidneys into a brain-dead man in the US. The process was conducted in a step-by-step manner.

“One question is: Can a kidney from a pig tolerate an adult human environment?,” the surgeons question in a news release from the university. Blood pressure is one hurdle because non-human primates and pigs have lower mean arterial blood pressures than adult humans. Without the human preclinical model, surgeons could not be sure that vascular integrity would hold up after the transplant. Equally important, the UAB researchers say, was the relative hemodynamic stability of the decedent upon reperfusion, indicating that washout of inflammatory mediators from the xenograft did not provoke cardiovascular collapse.

“By actually doing this transplant,” said transplant surgeon Jayme Locke, “we were able to show that you could take a kidney from a pig that had been genetically modified put that into an adult brain-dead human and actually have it hold its integrity, so it perfused normally, just like a human allograft. The vascular anastomoses stayed intact, and we didn’t have any major bleeding episodes, all things that are important to establish in a preclinical human model before we take this into living humans.”

Gene editing in pigs to reduce immune rejection has made organ transplants from pigs to humans possible, which could offer help to thousands of people who face organ failure, disease or injury.

Hyperacute rejection occurs within minutes if the recipient’s immune system recognizes a donor organ



as foreign, says UAB transplant surgeon Paige Porrett, associate professor in the UAB Department of Surgery’s Division of Transplantation and director of Clinical Translational Research for the Comprehensive Transplant Institute. When the UAB team reperfused the transplanted pig kidneys last fall, “We watched with bated breath, for seconds, for minutes.”

“The kidney turned beautiful and pink,” Locke said, “and within 23 minutes, it started making urine.” The kidneys remained viable until the experiment was ended after 77 hours.

Earlier this month, a genetically-modified pig heart was transplanted into a 57-year-old patient with terminal heart disease in the US by surgeons from the University of Maryland School of Medicine. This organ transplant demonstrated for the first time that a genetically-modified animal heart can function as a human heart without immediate rejection by the body.

The surgeons hope that they would be able to perform the transplant in living patients, possibly later this year.